Innovative Contracting Practices for ITS

Executive Summary

L.S. Gallegos & Associates, Inc., for FHWA

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OVERVIEW

This Executive Summary presents an overview of the findings and recommendations of the ***"Innovative Contracting Practices for Intelligent Transportation Systems"*** report. This report was prepared under Contract No. DTFH61-94-C-00164, administered by the United States Department of Transportation (U.S. DOT), Federal Highway Administration (FHWA), in cooperation with the Volpe National Transportation Systems Center (Volpe). The views expressed in this report do not necessarily reflect the views of the U.S. Department of Transportation. Persons reading this Executive Summary who desire a copy of the entire report can download a copy by accessing the reading room of U.S. DOT Joint Program office at **http://www.its.dot.gov** or ITS America's World-Wide Web site at ***http://www.itsa.org***.

As part of the Intermodal Surface Transportation Efficiency Act (ISTEA) Institutional Issues evaluation program, U.S. DOT requested that Volpe perform an evaluation of six ITS operational tests and identify institutional barriers to deployment of ITS technologies and systems. The Volpe report identified a lack of flexibility in the procurement practices of State and local transportation agencies as a significant institutional barrier that could constrain the successful deployment of Intelligent Transportation Systems (ITS).

Traditional procurement practices used by State and local transportation agencies were developed to support the design and construction of roads and bridges or to design and construct rail projects. The traditional procurement process for construction of a facility involves the letting of and completion of two separate contracts; one to retain an Architect/Engineer to prepare detailed design specifications for the facility, and, after design is completed, another for construction of the facility. The latter contract is publicly advertised and awarded to the lowest responsive and responsible bidder. This traditional approach utilizing a bifurcated process often lacks the flexibility required when contracting for rapidly evolving technologies and systems

such as ITS.

To assist State and local transportation agencies planning to implement ITS projects using federal funds, FHWA contracted with L.S. Gallegos & Associates, Inc. to review State and local contracting rules, regulations, policies and practices, and then to develop a "tool kit" of procurement techniques successfully used by State and local agencies to implement ITS.

Specifically, the objectives of the contract were to:

- Identify and analyze contracting issues which have arisen or are likely to arise in the development and deployment of Intelligent Transportation Systems (ITS) and which may be constraining or hampering the implementation of ITS technologies.

- Develop legally sound, innovative models for contracting for ITS technologies by State and local contracting agencies.

The ultimate objective was to provide streamlined contracting practices that encourage the development and implementation of technologies which meet the goals of the ISTEA for safety, efficiency, enhancement of the environment and United States competitiveness and productivity. Practices developed are directed at obtaining quality ITS products and services which meet the contract requirements at a fair and reasonable price and which protect the public interest in the integrity of the public contracting processes.

In the course of the analysis, ten contracting issues were identified:

- Types of Contracts
- Methods of Award
- Combined or Coordinated Procurements
- Pricing and Cost Sharing
- Allowability of Costs
- Cost Accounting Standards and Principles
- Auditing
- Intellectual Property
- Organizational Conflicts of Interest
- Liability

These contracting issues were thoroughly researched and analyzed based on the workplan developed by FHWA which emphasized interaction with attorneys and other procurement professionals possessing "hands-on" experience gained from initial ITS procurements. The lessons learned in these early applications of ITS provide the foundation and basis for the innovative contracting practices presented in this report.

To research and analyze the contracting issues, the following activities were performed:

- An extensive literature search on each contracting issue
- Interviews with numerous attorneys and ITS procurement professionals
- Review of transactional documents used to implement ITS
- Review of current FHWA & FTA procurement policy

To further the research, a panel of national ITS procurement experts was formed to encourage interactive discussions of these issues. Stakeholders from other organizations and institutions were also solicited for their input.

The panel of experts performed a key role in the analysis by bringing with them many successes which can

be repeated in other ITS deployments. They also offered insight regarding costly lessons learned which can be avoided in other procurements of ITS. The panelists, including representatives from both the public and private sectors and academia, met for a two-day Procurement Focus Session in Denver, Colorado. They continued to be involved by reviewing both the draft report and the draft final report presented to FHWA.

DISCUSSION OF ISSUES

A detailed analysis of each contracting issue provided several major findings to consider when developing contracting strategies and practices for development or deployment of ITS projects. By reviewing the following findings, practitioners will increase their knowledge of potential barriers which may arise and understand how those barriers can be avoided or mitigated by using innovative contracting practices.

Types of Contracts & Methods of Award

- The Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments, issued by the Office of Management and Budget (OMB) and codified within most Federal agencies' regulations, establish a "Common Rule" governing grants administration. The Common Rule provides that "States will expend and account for grant funds according to their own laws and procedures." This authority includes planning and management of procurement processes regarding contract type, method of award and pricing methodology.

- Procurement options available to States and local agencies may be limited by federal or State laws, the terms of a grant, or agency regulations or practices. There are very specific rules to be followed when a procurement is solely for architect/engineering services or for construction. Outside of these areas there is contracting flexibility and many procurement options available to obtain ITS goods and services.

- The most common institutional arrangements in the developmental, pre-deployment phase include "cost sharing", "partnering", "cooperative research and development agreements" and bundled contracts providing for system design, fabrication, installation, demonstration testing, and/or evaluation. Institutional arrangements in the operational deployment phase range from purely private approaches such as franchising to purely public models based on 100% taxpayer financing. The numerous and inconsistent labels attached to innovative procurement methodology can cause confusion.

- Each ITS procurement is unique and is most effective when focused on the transaction's desired end result. Formulating procurement strategies involves the evaluation of the impact of certain "discriminators" which may dictate or eliminate available procurement options. Discriminators include: source(s) of funds, extent of project definition, project phase, and scope of services.

Barrier: Failure of traditional procurement approaches to be flexible and responsive to the unique deployment needs of ITS. The impact of this barrier is further compounded by the lack of contracting personnel experienced in the nuances of ITS procurements.

Solutions Identified:

(1) Utilize flexibility within existing procurement rules, regulations and practices to maximize lifecycle

value of ITS goods and services while maintaining the integrity of the contracting process. Improper matching of contract type or award methodology may result in lessened competition or inability to obtain best value in an ITS procurement. Traditional design-bid-build contracting methodologies should be utilized for scopes of work that involve purely design or construction activities. Outside of these areas there is room for innovation so long as competition is maintained and selection criteria are made known in advance and are consistently applied.

(2) Critical decisions regarding contract type and award methodology are best made early in the procurement planning process with involvement of the Program Manager, Contracting Officer and, if appropriate, legal counsel. If federal funds are involved, it is desirable for State and local contracting agencies to involve FHWA Division Administrators if innovative contracting practices are contemplated.

(3) Educate and inform contract professionals as to available procurement options which may provide more flexibility in the procurement of ITS goods and services within existing rules and regulations.

Combined or Coordinated Procurements

- Interagency cooperation is critical to obtaining regional compatibility and interoperability of ITS which will foster greater economy and efficiency. The Common Rule encourages State and local agencies to enter into intergovernmental agreements for procurement or use of common goods and services.

- Agencies may be prevented from entering into combined or coordinated procurements due to lack of authority to permit another agency to commit or spend ITS funds, or by incompatible procurement regulations.

- Multi-jurisdictional procurements require sound management by one of the participating entities, an outside consultant, or Metropolitan Planning Organization (MPO) to ensure procurement objectives are clear and any differences in practices, policies or procedures are reconciled.

- Difficulties associated with planning and implementing combined or coordinated procurements are often due to lack of defined roles and responsibilities rather than legal constraints. State and local agencies have been creative and successful in implementing multi-agency procurements.

Barrier: Concern regarding the authority of one agency to participate in a multi-agency procurement process and have its funds committed by another entity.

Agencies have been very effective at overcoming this barrier if they are committed to working together. The barriers are more often institutional than legal.

Solutions Identified:

(1) Unless expressly prohibited, construe broadly an agency's power to enter into agreements necessary or incidental to the performance of its duties or incidental to the execution of its powers. Broad grants of power to perform activities "necessary and incidental to" the accomplishment of an agency's mission are often included in agency enabling legislation.

(2) Include explicit, broad authority to enter into intergovernmental agreements in State agency enabling legislation. Even if authority to enter into multiagency procurements can be implied, an express grant of authority can clarify the availability of the approach, and provide specific directions to be followed. A clear directive granting authority to enter into combined or coordinated procurements establishes legislative intent and may prevent litigation challenging agency authority.

(3) Invite offerors to make an "irrevocable offer" where delegation of the authority to commit funds is a barrier and other solutions are not available. Even in absence of implied or express grants of authority, agencies can often participate in joint, multi-agency procurements so long as the State has the ultimate power to accept an offer. This is an effective technique where the procurement is conducted by another agency, up to the point of formal acceptance of the offer.

Financial Administration of Grants and Cooperative Agreements

The Common Rule establishes uniform administrative policies for financial administration of federally-funded ITS projects. The rule allows States to account for grant funds in accordance with their own laws and practices. The rule imposes differing grant administration requirements on State agencies as opposed to non-State agencies.

- Public policy requirements impose allowability-of-cost issues on the private sector in order to exclude certain types of costs from vouchers or invoices requesting reimbursement out of public funds. Grantees are required to establish that they are consistently applying proper accounting standards and are utilizing acceptable cost principles to identify and isolate costs not chargeable to a contract. Applying these principles can be problematic for firms doing business with the public sector for the first time.

- Cost principles come into play when cost is a basis for either contractor selection, for contractor compensation, or for pricing adjustments on an existing contract. The Federal Acquisition Regulation (FAR) establishes cost principles which are utilized on federally funded procurements, but are not directly applicable to State and local procurements. They do, however, often come into play when incorporated into grantee contracts and subcontracts.

- Cost accounting standards refer to how a prospective contractor estimates, accumulates and reports contract costs. Public agencies require strict adherence and consistency in contractors' method of cost accounting from year to year. The private sector, on the other hand, may modify their accounting systems annually to take advantage of tax or accounting rule changes.

- Private sector firms fear disclosure of their propriety information resulting from public agency audits of their records. This can be mitigated by utilizing separate entities to "wall-off" private activities; retaining third party auditors who audit to government standards; or by not accepting public funds.

- As public agencies look to the private sector to supplement and leverage public ITS investments, revenue sharing or cost matching techniques will become more common. New language in the National Highway System Designation Act of 1995 extends and liberalizes rules allowing States to receive and value in kind goods and services. However, these sources of funds may be limited if the public sector utilizes intrusive methods to verify that the contribution was received and properly valued.

- The federal government has significantly reduced grant administration requirements on State and local agencies. State and local agencies are encouraged to work with U.S. DOT to develop alternative cost

principles acceptable to the parties which are more responsive to the unique needs of ITS deployment and encourage partnering with the private sector.

Barrier: Private sector firms doing business with government entities for the first time may lack knowledge of the concept of unallowable contract costs, or may understand the concepts but lack the accounting systems needed to apply the cost principles.

There are fundamental differences between Generally Accepted Accounting Principles used by the private sector and Fund Accounting utilized by governmental agencies. There is no equivalent to "unallowable costs" in the private sector and excluding such costs may be difficult for some private sector accounting systems.

Solutions Identified:

(1) Comply with the requirements of receiving public funds; negotiate on what constitutes compliance, and how compliance will be measured. The Common Rule allows much flexibility in the methods used to identify, value and exclude costs from an invoice or voucher requesting reimbursement from public funds. In addition there are many "off-the-shelf" accounting programs which are designed to comply with government accounting principles.

(2) Utilize alternative cost principles. Some traditional approaches may be waived by the parties if certain circumstances exist. For example, the existence of a competitive private sector market can establish a market price for supplies or services, allowing use of fixed-price contracts instead of cost-type contracts.

(3) Utilize partnering relationships between public and private sectors. Sometimes it is easier to coordinate public and private investment without commingling public and private funds. This eliminates the need for the public sector to audit the private entity and reduces the risk that trade secrets will be disclosed.

Barrier: Private sector firms doing business with public entities for the first time may lack the financial reporting consistency required by public sector cost accounting standards.

Private sector firms often adapt their accounting and reporting practices to take advantage of annual changes in tax law. This may create problems for public entities who require consistent accounting practices from year to year so that costs can be compared on an "apples to apples" basis. Problem areas include accounting for research and development costs and methodologies used to calculate depreciation expense.

Solutions Identified:

(1) Utilize alternative cost accounting standards. There is much flexibility for the parties to agree in advance as to how public and private cost standards can be reconciled to the satisfaction of both parties.

(2) Create a new organization or entity to perform the contract and receive public funds. Due to the inherent differences between the public and private sectors, many private firms create a separate entity formed to be more responsive to public sector cost reporting needs. This eliminates the need to modify the private sector's business practices to accommodate public sector cost standards.

Barrier: Private sector firms may not pursue publicly-funded ITS work due to fear of public disclosure of their proprietary financial information.

Solutions Identified:

(1) Utilize a third party accounting firm to perform contractor audits to public sector standards. The U.S. DOT has adopted the Single Audit Act encouraging public agencies to utilize a single audit in lieu of performing redundant independent audits by each funding agency.

(2) Do not permit audit working papers to remain in the public agency's files. An audit report can identify audit deficiencies and reference source documents. The public agency can access these documents under existing contractual audit rights and copy them if a need arises.

Barrier: The private sector cannot be expected to partner with public agencies by sharing costs without receiving sufficient benefits or opportunities to recoup its investment and make a profit.

Cost sharing requires benefit sharing. To survive in the long run, the private sector must recover its investment and make a profit based on the risk assumed.

Solution Identified:

Establish an environment for success which responds to needs and wants of both the public and private sectors. Public/private partnerships require an understanding of each stakeholder's needs. A shared benefit for a successful outcome and an environment of trust that each party will perform as represented are also essential.

Intellectual Property

- "Intellectual Property" (IP) refers to patentable inventions, copyrights, and trade secrets, as well as compilations of data derived from the operation of ITS technologies, which may or may not be subject to copyright protection. ITS applications raise challenging new questions regarding IP. The allocation of sufficient contractual IP rights to enable the private sector firms to make a profit is critical.

- There is much opportunity for creative procurements involving IP. The private sector is generally in a better position to exploit technological innovations than the public sector. Projects financed in whole or in part by Federal funds require the granting of a limited license to the Federal Government which may constrain exploitation of the IP.

- Institutional issues regarding IP can be an area of tension between the public and private sectors. The opportunity to exclusively apply intellectual property rights over an extended period of time is the private sector's incentive to invest in research and development. The public sector, on the other hand, encourages competition and resists creating monopolies.

Barrier: The private sector and State and local governments broadly interpret standard Federal Government intellectual property contract clauses, chilling the private sector's willingness to bid on contracts and making contract negotiations difficult.

This barrier may prevent the most qualified vendors from proposing on federally funded projects so that their intellectually property is not subjected to mandatory public sector licensing or public disclosure which might impair future marketability of proprietary products.

Solutions Identified:

(1) With FHWA cooperation, draft contract language to clarify Federal ownership of intellectual property rights. Narrowly construing FHWA's sublicensing rights to specific applications may alleviate private sector concerns.

(2) With FHWA cooperation, the State grantee should modify the standard IP clauses used in its contracts in order to clarify the scope of the Federal Government's retained IP license. The State should obtain necessary IP rights for its purposes; but attempting to get unnecessary rights through a broad State license may diminish the commercial value of IP to the private sector, discouraging firms from participation in ITS procurements.

(3) Instruct prospective contractors to describe steps they will take to ensure commercialization of inventions arising under the project, and to describe the steps they will take to make inventions available to State and local governments, thereby alleviating some uncertainty the contractors may have with respect to Federal "March-in Rights." Clarifying the unknowns and licensing limitations at the outset of the project may prevent later disputes regarding interpretation of the IP rights.

Barrier: Potential for future disputes regarding the inventions to which the Federal Government's license rights apply.

Critical terms such as "subject invention", "first actually reduced to practice" and "in the performance of the work under" are critical terms which must be precisely defined.

Solutions Identified:

(1) If the grantee has adequate information, identify in the contract which of the inventions that the private party is bringing to the project are already "reduced to practice," and which will be developed under the contract; specify the technologies to which any government funds are being applied.

(2) Include detailed contract provisions describing any pre-existing IP developed by a party with its own funding ("PARTY Intellectual Property").

Barrier: Conflict between contractor's desire to keep intellectual property proprietary and the traditional view that publicly-funded products should reside in public domain.

The definition of and allocation of IP rights highlight the fundamental differences in mission between public and private entities. Informed decisions and negotiated compromises must be made that are fair and responsive to each others' needs.

Solutions Identified:

(1) Allocate to the contractor ownership of rights in copyright materials that are contractor cost responsibilities or shared cost responsibilities. FHWA and State DOTs are fully licensed to use the material.

(2) Supplement standard contract intellectual property rights clauses to clarify contractor's rights. Documenting in advance how a public entity plans to construe its license can establish limits acceptable to the private sector.

(3) States can initially ask for title to intellectual property, but negotiate royalty arrangement in lieu thereof. This arrangement allows the private sector to exploit intellectual property rights while providing the public entity a potential revenue stream to offset future costs and free up revenue for investment elsewhere.

(4) Negotiate royalty payments to compensate the public agency for its financial contribution to intellectual property development. Ownership can then be ceded to contractor. This is very similar to the previous solution using negotiated royalties to recoup public investment in technology development costs.

(5) Waive delivery of limited rights data and restricted software; clarify limits on government license. This is consistent with Federal Acquisition Regulation Rights in Data-General Clause.

(6) Escrow technology. If the public agency is not going to acquire all rights in Intellectual Property in connection with an ITS deployment, the agency needs to protect itself in the event of system failure or contractor's going out of business, in order to provide ongoing operations and maintenance of the system.

Barrier: Lack of legislative authority for transportation agency to accept intellectual property royalties and/or to earmark such funds.

Although often granted broad authority to conduct business, some State and local transportation agencies may have requirements to turn over royalty proceeds to another State entity that determines how the money will be spent.

Solutions Identified:

(1) Allocate royalties to a participating governmental party with clear authority to accept, retain, and use royalty funds. Some State transportation agencies have utilized State universities to hold and manage intellectual property rights including receipt and reinvestment of royalties.

(2) Enact legislation expressly permitting State agencies to retain royalty income from intellectual property as an incentive to negotiate such arrangements.

(3) Form a special purpose entity to retain royalties and reinvest in ITS. Complex multi-stakeholder projects may require new institutional arrangements such as no-stock, no-dividend corporations to receive, invest or disburse royalties among the stakeholders.

Barrier: Private sector concerns regarding data security.

The best techniques for maintaining data security are to not put private information in databases accessible to the public, limit the data furnished to the public sector entity, and control access to the data held by the public sector.

Solutions Identified:

(1) Hire third party systems integrator to hold and protect data. The third party then can enter into a confidentiality agreement identifying restrictions on transmission and retention of documents.

(2) Carefully label proprietary and confidential information; parties may expressly commit to use reasonable care to prevent disclosure, and to use information only for limited purpose, that data which is properly labeled. This can limit access to the data by third parties as well as limiting how it may be used by them.

(3) Require the contractor to place all source code and other proprietary technology necessary to manufacture and operate systems into third party escrow which may be accessed by the public agency only upon contractor default. This keeps proprietary data out of government's possession through this third party escrow, and ensures access to the data to provide continuous operation of the system. When specified conditions occur, the systems operator can access the source code through the escrow agent.

Barrier: Preserving the traveling public's privacy.

Making personal movement data available to the public may chill the public's acceptance of ITS technologies and their beneficial application due to potential for abuse of this data. Methods to prevent or mitigate privacy concerns should be addressed before collecting personal movement data.

Solution Identified:

Utilize third-party contractors to collect and maintain information to prevent creation of public records. Require parties having access to data to adhere to ITS America Privacy Standards or similar industry standards.

Barrier: Transportation agency fears that early deployment of ITS will result in purchase of obsolete technology or will prevent an integrated system in future.

Traditional contracting approaches to design and construct facilities make it difficult to ensure continuity in contractors or technologies as new technology applications become available.

Solutions Identified:

(1) Procure intellectual property rights which include "Technology Refreshment" clause allowing upward migration of technology. This provides an incentive for a contractor to reinvest to improve and upgrade operational systems after start-up.

(2) Create Technology Review Board to assess new developments in ITS technology, and recommend upgrades which the contractor should be required to incorporate into the ITS project. The distinction between developing and commercially available technologies is often blurred. Input from an objective panel of industry experts can be helpful to all parties responsible for making these difficult investment decisions.

Barrier: Combined and coordinated procurements, and Statewide systems with multiple operators have special needs for information sharing, which may not be allowable if proprietary information is involved.

This issue is complicated if proprietary processes are involved.

Solution Identified:

Utilize non-proprietary specifications and standards. This encourages competition and accelerates commercialization of products resulting in industry growth.

Organizational Conflicts of Interest

- Organizational Conflicts of Interest (OCI) rules were created to preserve fair and open competition and enable contracting agencies to obtain impartial advice from consultants. Concern has been raised that application of OCI rules when separate design and construction contracts are planned may limit the extent that companies can be both designers and providers of ITS. This may deter the best qualified contractors from participating in a project's early stages including system development and design.

- Characterization of a project can impact application of OCI. Different OCI rules may apply to systems engineering contracts, development contracts, evaluation contracts or planning contracts. OCI issues can be avoided through bundling of activities into a single contract such as a design-build contract.

- Lack of certainty as to which rules apply and how they will be applied to ITS is a problem, not the rules themselves. It is the public agency Contracting Officer's responsibility to articulate clear guidelines. Making the rules known at the outset of a project creates a level playing field where contractors, consultants, and vendors can compete for and be awarded work based on merit.

Barrier: OCI rules may deter the best qualified firms from participating in a project's early stages, including development and design.

Traditional OCI rules separate the design and construction activities to provide fair and open competition. However, utilizing a bifurcated approach may not necessarily result in the best value in an ITS procurement.

Solutions Identified:

(1) Prepare specifications in-house with ample opportunity for private industry to comment (for free) on

these specifications. Inviting industry to participate in developing a specification makes it more difficult to challenge the specification when issued.

(2) Involve the ITS design contractor in an oversight role during system implementation. This allows the designer to obtain ongoing fees and provides the contracting agency with continuity as the ITS specifications are implemented.

Barrier: Traditional Federal highway construction contracting rules require separation of the design contract from the construction contract.

Federal-aid highway program statutes generally require States to award separate contracts for highway design and highway construction. The term "highway construction" is defined to include ITS applications. Applying this bifurcation to ITS is impractical, however, because ITS involves deployment of information systems combining hardware and software where no logical separation of design and construction exists.

Solutions Identified:

(1) Carefully define project roles. A contractor that participates in "planning" (as opposed to "design") may still participate in construction. How a procurement is characterized often dictates whether or not OCI rules apply.

(2) Award a design/build contract if the public agency is authorized to use this type of contract. Design/build has some desirable characteristics for ITS and has been authorized for use by FHWA under Experimental Project No. 14. Agencies contemplating design/build approaches are cautioned that rules in this area may change and FHWA should be contacted for guidance on design/build approaches for projects utilizing Federal funds.

Barrier: Failure to clearly state guidelines regarding OCI and the division of responsibilities at the outset of a project may threaten the project.

Clarify expectations by making OCI requirements known at the outset of a project to prevent later disputes as to which OCI rules apply.

Solutions Identified:

(1) Project participants should establish a clear understanding regarding the division of responsibilities and limitations imposed by OCI at the outset of the project. This is the best way to prevent later misunderstandings as to the roles and responsibilities of project stakeholders.

(2) Expressly state in design contract solicitation that the successful ITS design firm and its affiliates will be excluded from bidding to supply the resulting system. Agencies may retain the services of the original design firm to oversee implementation and installation.

Liability

- Public and private sector participants in ITS deployment are concerned over becoming or being

viewed as "deep pocket" sources of funds to cover accident costs (tort liability) due to ITS operations. Designing safety into all aspects of ITS technology and operations is the most effective strategy to mitigate overall tort liability exposure.

- Parties to ITS deployment contracts can agree in advance to allocate particular tort liability costs to the participating party most appropriate to bear those costs using contract clauses such as waivers, disclaimers, indemnities, releases, and liability limitations.

Barrier: Tort liability for injuries associated with ITS products; allocation of risk between ITS providers and users.

Solutions Identified:
(1)(a) Require driver participants to sign informed consent forms.
(b) Every time the car's engine is started, the data screen warns driver that the system is experimental and that safety is the driver's responsibility.
(c) Each party provides its own insurance for its staff members and for test participants.
(2) Require test participants to execute waivers containing warranty disclaimers and liability limitations.
(3) Require transponder customers to execute release and indemnity in order to pay tolls electronically.

Barrier: Allocation of liability among ITS participants; multiple project participants may cause "innocent" governmental party to bear loss if separate disputes with contractors produce inconsistent results.

The governmental party may be responsible for coordinating multiple prime contracts which may result in the government entity being responsible for the timely, coordinated performance of all contractors.

Solutions Identified:

(1) Project agreement includes express warranty disclaimer. The disclaimer can disclose the conditions of the agreements and specifically disclaim public agency responsibility for the performance of other parties.

(2) (a) Limit vendor's liability to State or local agencies to the amount of money paid to-date under the contract.

(b) Limit period for bringing claims to two years.

(c) Mutual waiver of liability for consequential damages.

(d) Mutual obligation to notify all parties of any tort claims.

These contractual remedies are well established in areas outside of ITS and the solutions should transfer effectively to an ITS context.

(3) Require all contractors involved in a project to participate in joint dispute resolution to avoid inconsistent allocation of liability. This is often the quickest way to resolve disputes.

Barrier: Potential liability for patent and copyright infringement and anti-trust violations.

New applications of technology and the information produced from those technologies will raise some unique issues which create real or perceived risks due to the unknowns associated with ITS deployment.

Solution Identified:

(1)(a) Agree to mutual indemnification for patent infringement.
(b) Have vendor indemnify agency for anti-trust violations.
(c) Perform due diligence reviews to identify potential patent issues relating to an element of the proposed system. (2) Parties agree in advance on an alternative substitute technology as a back-up.

Barrier: Potential liability for monetary loss due to system failure in project with debt service funded by user fees.

This is a significant concern when deploying electronic toll collection systems. Inaccuracies or system failures can have significant negative financial impact on the owner/operator who relies on tolls to fund operations and debt service.

Solution Identified:

Contractor assumes responsibility for system accuracy regardless of whether or not contractor is the cause of the failure. This has been successfully applied to major toll road projects. The no fault concept assures the owner/operator that virtually all revenue will be realized for vehicles utilizing the automated toll collection facilities.

MAJOR FINDINGS

Throughout the course of the analysis, several findings cut across all issues as being critical to the success of ITS procurements. These "cross-cutting" issues are summarized in the following paragraphs:

(1) How A Procurement Is Characterized Is Critical. Throughout this report the need for ITS procurements to be flexible and adaptable to the facts and circumstances surrounding each procurement has been consistently emphasized. How one classifies an ITS project is important. For example, procurement rules and regulations may provide much more flexibility to procure financial administration systems than to procure ITS design services. It is important to be flexible in the classification of ITS projects early in the procurement planning process in order to preserve a maximum range of procurement options and implementation strategies.

(2) Flexible Procurement Practices Work Best If Initiated Early! Innovative contracting practices can be applied to all phases of an ITS project or program, but work best if applied at the outset to incorporate strategic objectives into the procurement planning process and the terms of the resulting contracts. In most cases institutional or legal barriers which were identified in advance by participants in the early operational tests were eliminated or mitigated by innovative contracting practices. There were no "show stoppers".

(3) ITS Solutions Can Be Implemented At Various Institutional Levels And Project Phases. State and local transportation agencies implementing federally funded ITS projects or programs have a variety of tools

available to them to overcome contracting barriers to ITS. Not all barriers require legislative or regulatory changes; many can be implemented by flexibly restructuring organizational or managerial aspects of a project. The findings and recommendations of this report identify a variety of procurement tools to build in flexibility at various institutional levels, including:

- Partnering with other public and private sector entities
- Enacting new or revised legislation
- Selecting funding sources which allow flexibility
- Leveraging intellectual property rights
- Utilizing private sector cost sharing with reasonable compliance requirements
- Carefully segregating, bundling and drafting contract scopes of work
- Promoting competition among pre-qualified offerors
- Utilizing evaluation and award criteria which are fair and flexible
- Incorporating expedited dispute resolution practices

(4) ITS Procurements Present Opportunities For Experienced Procurement Professionals To Innovate Within Existing Legal Framework. Procurement professionals experienced in utilizing innovative contracting practices can assist in removing institutional barriers to ITS deployment. There is however, a shortage of experienced professionals who are knowledgeable in nontraditional public or private procurement models. As a result, innovative procurement solutions allowable under current rules, regulations and practices go unidentified, unused or underutilized. ITS procurements represent opportunities for experienced, creative procurement professionals to develop creative solutions.

The ITS operational tests have shown that involving experienced procurement professionals early in the planning process enhances a project's chance of success. Unfortunately, the pool of experienced procurement professionals in public agencies is limited. In addition to in-house professional capacity building, agencies deploying ITS should consider contracting for external resources to provide innovative procurement expertise. Having experienced contract professionals involved in a procurement enhances its chances for a successful outcome. As stated in the Volpe case studies, "the organization from which a contract professional is from is less important" than ensuring that a project has access to at least one person who knows the procurement rules, regulations and practices and knows how to proactively apply them.